



WHAT IS CLAIMED IS:

1. A method for producing a flexible and low density cross-linking gel for connecting optical fibers having a refractive index, said method comprising:

54B  
C17  
B' a compounding step for adjusting the refractive index of a flexible silicone gel material to that generally equal to the refractive index of said optical fibers to be connected, and

a reaction step for causing the flexible silicone gel material adjusted in said compounding step to cross-link in a binding region where cross-linking density is low, thereby producing said low cross-linking-density gel for closely adhering to said optical fibers.

3. A method according to claim 1, wherein a polyorganosiloxane having vinyl groups at its ends is used as a primary agent of the flexible silicone gel material.

B2 4. A method according to claim 1, wherein a cross-linking agent is added in the reaction step.

5. A method according to claim 4, wherein the polyorganosiloxane having covalently bound hydrogen atoms is added as the cross-linking agent.

6. A method according to claim 1, wherein the compounding step and the reaction step are performed in a clean room.

7. A method for producing a low cross density gel used for connecting and for adhering to optical fibers, said method comprising:

a compounding step for adjusting the refractive index of a flexible silicone gel material to the refractive index of said fibers to be connected,

5UB  
C27  
B2  
a synthesizing step for synthesizing a composition by adding a cross-linking agent to said flexible silicone gel material adjusted in said compounding step;

a filling step for filling said composition into a syringe,

a sealing step for sealing said syringe, and

a reaction step for heating said sealed syringe to cause said composition to undergo an addition reaction in a binding region where cross-linking density is low, thereby producing a low cross-linking density gel in said syringe allowing said close adherence to said optical fibers.

8. A method according to claim 7, wherein the syringe is sealed by mounting a cap in the sealing step.

9. A method according to claim 8, wherein the syringe is mounted in a dispenser for dispensing a predetermined amount of the low cross-linking-density gel by replacing the cap mounted on the syringe by a nozzle after the low cross-linking-density gel is produced in the syringe.

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63 10. A low cross-linking density gel used for connecting optical fibers, said gel being characterized in that it is produced by adjusting a flexible silicone gel material so that said material has a predetermined refractive index generally identical to that of the refractive index of said optical fibers to be connected and further subjecting said gel to an addition reaction with the addition of a cross-linking agent so that said gel will cross-link in a binding region where cross-linking density is low.

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11. A low cross-linking density gel according to claim 10, wherein the specified refractive index is set substantially equal to the refractive index of cores of optical fibers to be connected.

12. A low cross-linking-density gel according to claim 10, wherein the flexible silicone gel material is a polyorganosiloxane having vinyl groups at its ends.

13. A low cross-linking-density gel according to claim 10, wherein a cross-linking-agent is added prior to the cross-linking reaction and the addition reaction takes place in the presence of a platinum catalyst.

14. A low cross-linking-density gel according to claim 13, wherein the cross-linking-agent is polyorganosiloxane having covalently bound hydrogen atoms.

15. A low cross-linking density gel according to claim 13, wherein the composition after being filled in the syringe is caused to undergo the addition reaction by being heated during the cross-linking reaction.

16. A low cross-linking-density gel according to claim 10, wherein the low cross-linking-density gel is produced in a clean room.

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